

AMENDMENT UNDER 37 C.F.R. § 1.111
U. S. Application No. 09/640,684

REMARKS

Claims 1-28 are all the claims pending in the application.

Claims 5-7, 12-14, 19-21, and 26-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims.

Claims 1, 3, 4, 10, 11, 15, 17, 18, 24 and 25 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claims 1, 2, 8, 9, 15, 16, 22, and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over previously-cited Neitzel et al. (US 5,550,888, hereinafter "Neitzel") in view of newly-cited Yamazaki et al. (US 6,603,450, hereinafter "Yamazaki").

With regard to the rejection under 35 U.S.C. § 112, second paragraph, the Examiner states that the limitations of S_{\max} for boundary value of S_a in claim 1 is repeated in claims 3, 4, 10 and 11. Also, the Examiner notes that S_{\max} in claim 15 is repeated in claims 17, 18, 24 and 25. Applicant's representative called the Examiner on December 4, 2003 to discuss the rejections under 35 U.S.C. § 112, second paragraph. During that discussion the Examiner indicated that the claims are rejected, because the equation for S_a which appears in claims 1 and 15 is repeated in certain of the dependent claims, without further limiting the equation. Therefore, Applicant amends claims 3-7, 10-14, 17-21 and 24-28 to delete the duplicate recitations of the equation and the duplicate recitations of the definition of S_{\max} , thereby overcoming the rejection.

For the rejection of claims 1 and 15 based on the recitations of "signal value," Applicant amends the recitation of "said input image signal value" to "the value of said input image

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signal.” Also, the claims are amended to recite first and second regions, rather than a low signal value region and an intermediate and high signal region. Additionally, the high signal value region and an intermediate signal value region are changed to first and second portions of the second region. During the interview held on December 4, 2003, the meaning of the term “signal value” in the claims was discussed. In light of the amendments to the claims, the term “signal value” no longer appears in the claims, thus rendering moot the rejection based on the use of this term.

Turning to the prior art rejection, Applicant has the following comments.

Applicant submits that the prior art fails to teach or suggest all of the limitations of the rejected claims. With regard to claim 1, the applied references fail to teach or suggest setting the output brightness characteristic so that a rate of change, which represents a change in a logarithmic value of the output brightness with respect to a change in the value of the input image signal, in a first region of the image signal below a boundary value S_a becomes smaller than that in a second region of the input image signal above the boundary value S_a . The Examiner does not even explicitly assert that either of the applied references discloses the aforementioned feature of claim 1. Rather, the Examiner applies the Neitzel reference due to its alleged disclosure of individual data words of a data set being corrected and subjected to a logarithmic transformation by means of a look-up table in conformity with the formula $E = \log D/D_0$. The Examiner cites the Yamazaki reference for its alleged disclosure of boundary conditions and the threshold values. Hence, the portions of the references cited in the Office Action simply fail to disclose the limitations claimed. In particular, Neitzel discloses performing a logarithmic transformation on the image data (col. 5, lines 65-col. 6, line 4), but such a

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disclosure does not correspond to setting the output brightness characteristic as recited in claim 1. Likewise, Yamazaki does not disclose this feature of the claim. Here, the Examiner refers to col. 6, lines 1-50 of Yamazaki. However, this portion of the reference discusses determining threshold values for an electron emission device to achieve a certain level of luminance just below an “on” level. The level appears to be set based on a difference in potential across two wirings for a non-selected (off) position, rather than relative to an image signal state. Thus, even if the references were to be combined as suggested by the Examiner, the references would still fail to disclose setting the output brightness characteristic as recited in claim 1. Therefore, claim 1 is allowable over the prior art for at least this reason.

Also, Applicant submits that the references fail to teach or suggest the feature of claim 1 of the boundary value between the first region and the second region being represented by the equation given in claim 1. This particular limitation of the claim is quite specific, and simply is not taught or suggested by the references. Moreover, the Examiner has not even asserted that this particular equation is disclosed by either reference. Rather the Examiner has made very general assertions related to low and high signal values. Therefore, claim 1 is allowable over the prior art for this additional reason.

Claims 2, 8 and 9 are allowable over the prior art, at least because of their dependence from claim 1.

With respect to claim 15, Applicant submits that claim 15 is allowable over the prior art for reasons analogous to those presented above in relation to claim 1.

Also, claims 16, 22, and 23 are allowable over the prior art at least because of their dependence from claim 15.

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Additionally, Applicant submits that there is no teaching or suggestion to combine the references due to the differences between the references. Neitzel relates to a method of displaying a spatial distribution of an X-ray image whose pixels are associated with digital input image values. Neitzel's method enables a user to preset contrast and density of the visible image in conformity with the user requirements. By contrast, Yamazaki relates to an image forming apparatus and image forming method for irradiating a light-emitting substance with electrons. Yamazaki's apparatus comprises a plurality of electron-emitting devices arranged in a matrix, a light-emitting substance for emitting light by irradiation of electron emitted by the electron-emitting devices, and first and second wiring driving circuits for applying potentials such that power consumption is reduced. See col. 5, lines 15-65. As described in col. 1, lines 12-38, Yamazaki relates to hot and cold cathode devices, such as surface-conduction type electron emitting devices. Since Neitzel is unrelated to the types of devices and methods described in Yamazaki, Applicant submits that it would not have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Yamazaki with the teachings of Neitzel. Therefore, the claims are allowable over the prior art for this additional reason.

With regard to the Examiner's alleged motivation or suggestion to combine the references, Applicant has the following comments. The Examiner asserts that it would have been obvious to combine the references, because Neitzel discloses a method in which it is only essential that the small image structure have a smaller dynamic range than the large image structures, and Yamazaki illustrates in FIG. 11 that as the voltage of the device increases the luminance increases. However, FIG. 11 of Yamazaki simply shows a graph of relative luminance values verses voltage values, which discloses nothing about small or large image

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structures or a particular dynamic range of image structures. Hence, the Examiner's alleged motivation to combine the references is deficient. Furthermore, the Examiner's alleged motivation to combine the references does not overcome the disparate teachings of the cited references, and thus the claims are allowable over the prior art and for the above-noted reasons.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

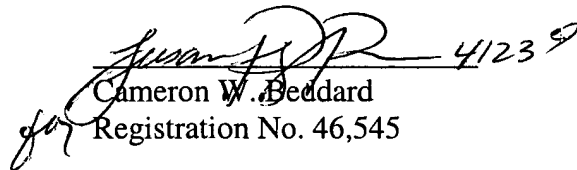
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